REMARKS

This application has been reviewed in light of the Office Action dated February 10, 2003. Claims 1, 3, 4, 7, 12-16, 18, and 19 are presented for examination. Claims 1, 3, 4, 7, 13, 15, 16, 18, and 19 have been amended to define more clearly what Applicants regard as their invention. Claims 1, 16, and 19 are in independent form. Favorable reconsideration is requested.

Claims 1, 3, 4, 7, 12-16, 18, and 19 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,031,543 (*Miyashita et al.*).

As shown above, Applicants have amended independent claims 1, 16, and 19 in terms that more clearly define what they regard as their invention. Applicants submit that these amended independent claims, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

The present invention relates to an image processing apparatus and method for performing saturation conversion. A plurality of parameters are used for performing the saturation conversion. By virtue of this arrangement, saturation conversion can be appropriately done in a chromatic color area.

The aspect of the present invention set forth in claim 1 is an image processing apparatus. The image processing apparatus includes a saturation calculation unit that calculates saturation information of an image, and a saturation conversion characteristic generating unit that generates a saturation conversion characteristic on the basis of conversion lines or curves, corresponding to each conversion condition for low-saturation side and high-saturation side, where the saturation conversion characteristic shows the relationship between input saturation information and output saturation

information. The image processing apparatus further includes a saturation conversion unit that converts the saturation of the image on the basis of the saturation conversion characteristic.

One important feature of claim 1 is that the saturation conversion characteristic generating unit generates a saturation conversion characteristic on the basis of conversion lines or curves corresponding to each conversion condition for low-saturation side and high-saturation side, where the saturation conversion characteristic shows the relationship between input saturation information and output saturation information. That is, the saturation conversion characteristic used in the saturation conversion process is calculated based on the conversion lines or curves corresponding to the low-saturation and high-saturation conversion parameters. Support for this feature can be found at least at page 22, lines 12-17, of the specification. By virtue of this arrangement, a chromatic hue can be prevented from becoming achromatic at the low-saturation side or being improperly saturated at the high-saturation side as a result of saturation conversion.

An example of the saturation conversion characteristic is shown in Figure 12. As depicted in Figure 12, the conversion lines are made by two partial lines. One partial line is between the origin (0.0, 0.0) and point A (corresponding to the low-saturation side conversion parameter), and the other is between point A and the upper right point (1.0, 1.0) of the graph (corresponding to the high-saturation side conversion parameter). By virtue of this arrangement, flexible saturation conversion can be achieved.

Miyashita et al. relates to an image processor for retouching color images. The *Miyashita et al.* system separately adjusts the brightness, saturation (chroma) and hue

of a digital image. The Office Action, in the Response to Amendment and Arguments section, states that *Miyashita et al.* clearly indicates that a user can specify more than one parameter for converting saturation, and cites column 10, line 25 as support therefor. However, Applicants respectfully disagree with this reading of *Miyashita et al.* Applicants submit that the cited reference refers to a graduation conversion curve and not to saturation conversion. According to *Miyashita et al.*, this graduation conversion curve is controlled by operating levers 115, 116, 113, and 114, the graduation conversion curve corresponding a look up table (LUT) for L* data (column 10, lines 22-33). Similarly, hue conversion is performed using levers 118 and 119 (column 11, lines 21-30). Of course, a graduation characteristic (L*) or a hue characteristic is different from a saturation characteristic, and an effect achieved by converting L* or the hues is also different from the effect achieved by saturation conversion. Nothing in that patent is seen to provide the ability to ensure that chromatic color can be prevented from becoming achromatic at the low-saturation side or being saturated at the high-saturation side as a result of saturation conversion; this effect cannot be achieved by converting L* or hue, even if L* conversion or hue conversion is performed using plural parameters.

In the *Miyashita et al.* system, saturation conversion is performed using only lever 120, as shown in Figures 25 and 34 (column 11, lines 41-46), and not controlled by plural parameters. In contrast, the structure recited in independent claim 1 generates a saturation conversion characteristic on the basis of conversion lines or curves corresponding to each conversion condition for low-saturation side and high-saturation side, where the saturation conversion characteristic shows the relationship between input saturation information and output saturation information. In other words, independent

conversion conditions for low-saturation side and high-saturation side form the basis for generating a saturation conversion characteristic. Applicants submit nothing in *Miyashita et al.* would teach or suggest a saturation conversion characteristic generating unit that generates a saturation conversion characteristic on the basis of conversion lines or curves corresponding to each conversion condition for low-saturation side and high-saturation side, where the saturation conversion characteristic shows the relationship between input saturation information and output saturation information, as recited in claim 1.

Accordingly, Applicants submit that claim 1 is clearly allowable over *Miyashita et al.*

Independent claims 16 and 19 are method and recording medium claims, respectively, corresponding to apparatus claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with claim 1.

The other rejected claims in this application depend from one or the other of independent claims 1 and 16, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

This Amendment After Final Action is believed clearly to place this application in condition for allowance and, therefore, its entry is believed proper under 37 C.F.R. § 1.116. Accordingly, entry of this Amendment, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, it is respectfully requested that the

Examiner contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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